

PRELIMINARY ASSESSMENT

EXECUTIVE SUMMARY

TO: COLLEEN HART, U.S. EPA
FROM: KRISTIN GOLDBERG, FIIT
DATE: SEPT. 27, 1991
SUBJECT: REPUBLIC STEEL, CHICAGO, ILLINOIS.
ILL0566233787 05 9104-030/FILO170PA

EPA Region 5 Records Ctr.



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The Republic steel site is located at 11600 Burley St. along the eastern edge of the Calumet River in southern Chicago, Cook County, Illinois. The site is currently active and consists of two ^{deu}independently operated and owned businesses, Republic Engineered Steels Corporation and LTV Steel. The site is bordered to the north, south, and west by various industries; and commercial and residential properties to the east.

Both LTV Steel and Republic Engineered Steels Corp. have operated the site independently in the past as a steel manufacturing/coke production facility. Republic Steel initially owned and operated the site in 1900. LTV Steel obtained ownership and ran operations sometime between 1930 and 1939. In 1989, LTV Steel sold the steel manufacturing portion of the facility to Republic Engineered Steels Corporation (formerly Republic Steel). As a result, the site was divided into two sections, each separately owned and operated. LTV Steel retained its coke operation which is located on the northern portion of the site and is approximately 167 acres in size. Republic Engineered Steels Corp. is located on the southern end of the site and contains roughly 63 acres. There are approximately 70 workers in all at the Republic Steel site.

LTV currently produces coke, primary oils (benzene, toluene, and xylene), ammonium sulfate, and tar. Hazardous wastes generated by LTV include; approximately 500 pounds of petroleum naptha which is stored in drums and picked up monthly for recycling by Safety Kleen of Portage, Indiana; and waste wash oil which is stored in 2 tanks (100,000 gallons each) until it is either recycled on-site or removed by Beaver Oil for use in fuel blending.

Republic Engineered Steels Corporation is an integrated steel plant which currently operates a coke battery and 11" bar mill. The following hazardous waste streams are generated: baghouse lead dust, electric furnace (EAF) dust, spent pickle liquor, and decanted tar sludge. From approximately 1980 to 1985, baghouse lead dust was stored in a drum storage area and EAF dust kept in a waste pile. A closure plan for these these storage areas was approved by IEPA on January 21, 1986. An October 16, 1990 RCRA Inspection Report indicates that spent pickle liquor (or sulphuric acid waste) is stored in two above ground storage tanks (totaling 40,000 gallons) and the decanted tar sludge (containing 75 tons) accumulates in a process tank. The sulphuric acid is sent off-site and used as a flocculant by the local publically owned treatment works; the tar sludge is sprayed onto coal and recycled back into the system.

IEPA inspections of the site, conducted from 1980 to 1985, have elucidated past hazardous waste storage practices that were a potential threat to the environment and population at large. As a result, those storage areas (baghouse dust drum storage area and EAF waste pile) were cleaned up and shut down in 1986. Other complaints have been raised by nearby residents and

municipalities in reference to spills and illegal discharges into the Calumet River and Wolf Creek, allegedly by site activities. The following incidences were reported between 1936 and 1990: an oil slick, an nighttime discharge of scrubber water, an off-site run-off of storm and waste water and a 'milky white seepage' of waste into Wolf Creek from a slag storage area.

Ecology and Environment, Inc. surveyed the site on May 14, 1986. No samples were collected. The ILPA collected effluent samples from the wastewater discharge points on the Calumet River on May 18, 1989. Acetone was detected at 1.6 mg/l.

On February 11, 1991, a NPDES discharge permit was granted to LTV Steel for discharge of cooling water, storm water, and groundwater to the Calumet River. In April of 1991, LTV filed a petition for review of the permit, alleging that various effluent limitations and temperature requirements were "arbitrary and capricious". LTV Steel also has a NECHAP permit for air emissions. Both LTV Steel and Republic Engineered Steels Corporation are RCRA regulated. LTV Steel is listed as a "generator and disposal" facility, Republic Engineered Steels as a "transporter and generator", according to 1991 ILPA file information.

Surface water bodies in the vicinity of the site include the Calumet River, which is adjacent to the site, Lake Calumet, approximately 1.5 miles west and downstream of the site, Lake Michigan, 3 miles upstream of the site, and Wolf Lake, 1 mile downstream of the site. The overland flow on-site is generally west towards the Calumet River, however there has been at least one incident where overland flow occurred eastward onto a residential property. Surface

water contamination is a viable threat at the site due to the adjacent location of the site to the Calumet River, the western overland flow pattern and site slope, and the documented incidences of spills and illegal discharges to surface water bodies. Surface water use from the point of entry on-site (via discharge pipes) into the Calumet River to all locations within 15 miles downstream of the site is primarily recreational with industrial use as well. Contaminants that are released into the river can therefore potentially affect the human food chain.

Sensitive environments in the area of the site include wetlands that are adjacent to the north of the site and William Powers State Conservation Area located 3/4 of a mile southeast of the site. There is a potential for contamination to occur at both of these sensitive environments due to the fact that past and recent flooding and spills have affected these areas.

The general stratigraphy within a 4 mile radius of the site is characterized by unconsolidated Quaternary deposits underlain by Silurian Dolomite which overlie the Maquoketa Shale and St. Peter Sandstone Formations. The aquifer of concern is located in the shallow glacial drift aquifer of Quaternary age and consists of sand, silt, clay and gravel. A surficial sand layer in the aquifer ranges from 0-15 feet thick and begins at the land surface.

Therefore the aquifer of concern is located at the land surface, and as such is very vulnerable to contamination.

Within a 4 mile radius of the Republic Steel site, 6 businesses and 4 residences utilize wells drawing from this shallow aquifer for their drinking supplies. The total population served by these wells is at least 20 people.

This is a conservative estimate due to the fact that information of the ~~site~~ of businesses and their clientele that could potentially be affected by contaminated drinking supplies is unavailable. Therefore, businesses were considered as households in the calculation. The aggregate of households and businesses was then multiplied by the person per household value for Cook County which is 2.75 people. The rest of the population within 4 miles of the site obtains their water from the Chicago Water District which draws from intakes located in Lake Michigan. Therefore the overall threat to the population via the ground water pathway is low.

In addition, the LTV Steel received an air emissions permit (NEESHAP) on April 3, 1990, which indicates that pollutants above the legal concentration amounts are not allowed to be released from the site. However, on March 5, 1991, during an ILDA drive-by inspection, a malfunction was observed at the on-site boiler house. Black emissions emanated from the coke oven smoke stack due to cracks or holes in the walls of the combustion chamber producing an odor. Therefore, the potential exists for other breakdowns and illegal emissions to occur on-site, which could potentially affect the nearby population via the air pathway.

The site is completely fenced and contamination sources are fairly well contained which substantially minimizes the direct contact threat. In addition, there are no schools, residences or daycare facilities within 200 feet of the site. However, surface water run-off of waste water to residential properties 1/2 mile from site has occurred and therefore the potential still exists for the population to come in contact with pollutants migrating off-site.